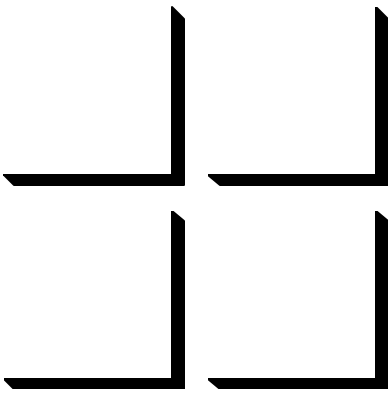

APPENDIX: H

Tree Report

Elmwood
Milpitas CA

PREPARED FOR:
David J. Powers & Associates, Inc.
1885 The Alameda, Suite 204
San Jose CA 95126

PREPARED BY:
HortScience, Inc.
P.O. Box 754
Pleasanton CA 94566

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Tree Report
Elmwood

Table of Contents

	Page
Introduction and Overview	2
Survey Methods	2
Description of Trees	2
Suitability for Preservation	4
Evaluation of Impacts and Recommendations for Action	6
Tree Preservation Guidelines	7

Attachments

Tree Location Map

Tree Survey Form

Introduction and Overview

David J. Powers & Associates, Inc. is preparing the Environmental Impact Report for the Elmwood's site in Milpitas CA. Current site use consists of open fields and an abandoned golf facility. David J. Powers & Associates, Inc. requested that HortScience, Inc. prepare a tree report for the site. This report provides the following information:

1. A survey of trees currently growing on the site.

2. An assessment of the impacts of constructing the proposed project on the trees.

3. Guidelines for tree preservation during the design, construction and maintenance phases of development.

Survey Methods

The survey included all trees greater than 6" in diameter located within and immediately adjacent to the proposed project area (as defined on the Boundary and Topographic Plan). The survey procedure consisted of the following steps:

1. Tagging each tree with a numerically coded tag;

2. Identifying the tree as to species;

3. Measuring the trunk diameter (54" above grade);

4. Evaluating the health using a scale where 1 = poor and 5 = excellent condition;

5. Noting any significant structural characteristics including decay, poor crown conformation, dieback, history of failure;

6. Assessing the tree's suitability for preservation;

7. Recording the tree's location on a map.

Description of Trees

General

One hundred eight-six (186) trees were evaluated, representing 20 species (see Table 1, following page). Trees were not distributed evenly across the site but were concentrated in several areas:

- 71 trees were present on the north edge of the property, west of Abel St. Most frequently occurring species were Arizona cypress (25 trees), river red gum (21), blackwood acacia (10) and silver dollar gum (10). Tree condition was variable due to a lack of maintenance in the recent past. A 33" Monterey pine (#404) was close to Abel and the largest tree in this group.

- 59 trees were located on the east side of Abel St. This area was dominated by the double row of American elm trees (#201 – 255). These trees were in poor condition due to a history of topping, extensive decay and a history of failure (see more detailed notes below). Two mature cottonwoods (#431 & 432) were north of the elm row. Both trees were in poor condition with multiple stems and a history of failure.

Table 1. Frequency of occurrence and condition of surveyed trees. Elmwood. Milpitas CA.

Common Name	Scientific Name	Condition			No. of Trees
		Poor (1-2)	Moderate (3)	Good (4-5)	
Blackwood acacia	*Acacia melanoxylon*	1	4	5	10
Mimosa	*Albizzia julibrissin*	--	--	1	1
White alder	*Alnus rhombifolia*	--	--	1	1
Carob	*Ceratonia siliqua*	9	2	--	11
Arizona cypress	*Cupressus arizonica*	7	10	7	25
River red gum	*Eucalyptus camaldulensis*	11	9	1	21
Silver dollar gum	*Eucalyptus polyanthemos*	4	6	--	10
Red ironbark	*Eucalyptus sideroxylon*	12	--	--	12
Myoporum	*Myoporum laetum*	7	2	1	10
Canary Island date palm	*Phoenix canariensis*	--	--	1	1
Monterey pine	*Pinus radiata*	--	1	--	1
Cottonwood	*Populus fremontii*	--	2	1	3
Almond	*Prunus dulcis*	--	1	--	1
Fruitless pear	*Pyrus calleryana*	--	--	1	1
Coast live oak	*Quercus agrifolia*	--	1	--	1
Calif. pepper	*Schinus molle*	--	--	4	4
Coast redwood	*Sequoia sempervirens*	14	--	2	16
American elm	*Ulmus americana*	55	--	--	55
Siberian elm	*Ulmus pumila*	1	--	--	1
Mexican fan palm	*Washington filifera*	--	--	1	1
Total		**121**	**38**	**26**	**186**

- 34 trees were present along the Correctional Facility Access Road, south of the Hetch Hetchy easement. Included in the planting were 12 red ironbark, 11 carob and 9 myoporum. All were in generally poor condition due to poor structure, a history of topping and general lack of care. Just north of this group of trees were two coast redwoods (#189 & 190). These may be located in the Santa Clara Valley Water District easement. Both were in poor condition.

- 15 trees were present in the area west of the Correctional Facility. 14 coast redwoods were immediately adjacent to I-880. Most were in poor condition due to a history of topping. One myoporum (#145) was more centrally located.

- 7 trees were present in the abandoned golf facility including 4 young Calif. pepper, a single coast live oak, a fruitless pear and Mexican fan palm. In addition, a number of unsurveyed trees (<6" diameter) were also located in this area.

Results for individual trees are found in the ***Tree Survey Form*** and ***Tree Location Map*** (see **Attachments**).

Observations of the historical elm grove
All of the 55 trees had been topped many years ago. Large lateral branches were either removed or cut to large stubs. There was extensive decay at the topping point as well as at old pruning wounds and sites of branch failure (see below left, red arrow). Sprouts that developed following topping were 6" to 10" in diameter. A set of utility lines paralleled the northside of the planting (see photo, below right). Trees on this side had been trimmed to provide clearance and were generally smaller in diameter with asymmetric crowns.

All of the elms were in poor condition. Dieback of twigs was common. For trees #204, 206, 214, 234, 242, 244, and 248, dieback extended into the main trunk. These trees were little more than a decay trunk with a few small sprouts.

Failure of branches and stems was common. We observed branches that had failed at the point of attachment to the stem as well as due to heavy weight. Several stems failed just below the topping cut. Decay was so extensive that the upper stem, where most of the branches were attached, simply broke off.

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape.

Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. For trees growing in open fields, away from people and property, the presence of structural defects and/or poor health presents a low risk of damage or injury if they fail. However, when we invite people to use areas within and adjacent to such trees, we must be concerned about their safety. Therefore, where development encroaches into existing plantings, we must consider the potential for trees to grow and thrive in a new environment as well as their ability to remain structurally stable.

Evaluation of suitability for preservation considers several factors:

- **Tree health**
  Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.

- **Structural integrity**
  Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely.

- **Species response**
  There is a wide variation in the response of individual species to construction impacts and changes in the environment. In our experience, species such as Monterey pine are difficult to preserve. They rarely recover from injuries to the root system. In contrast, other species, such as coast live oak and coast redwood, are more tolerant of site disturbance.

- **Tree age and longevity**
  Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (see ***Tree Survey Form***).

Good	Trees with good health and structural stability that have the potential for longevity at the site. Twenty (20) trees were rated as having good suitability for preservation. Included in this group were 5 Arizona cypress and 5 blackwood acacia, both at the north edge of the property as well as 4 Calif. pepper in the golf course facility.
Moderate	Trees with fair health and/or structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring, and may have shorter life-spans than those in the "good" category. Twelve (12) trees were rated as having moderate suitability for preservation including 5 Arizona cypress and 2 river red gum, both at the north edge of the site.
Poor	Trees in poor health or with significant defects in structure that cannot be abated with treatment. Trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. One hundred fifty-three (153) trees were rated as having poor suitability for preservation including 55 American elm, 17 river red gum, 15 Arizona cypress, 14 coast redwood, 12 red ironbark, 11 carob and 10 silver dollar gum.

We cannot recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Evaluation of Impacts and Recommendations for Removal

Appropriate tree retention develops a practical match between the location, intensity of construction activity and the quality and health of trees. The ***Tree Survey Form*** was the reference point for tree condition and quality. For the overall site, potential impacts from construction were evaluated using the Vesting Tentative Map (dated June 2003) prepared by Ruggeri-Jensen-Azar & Associates, project engineers. Site plans call for high-density residential to be constructed on the east side of Abel Street as well as west side, north of the Hetch-Hetchy easement. No development was indicated for the area west of the Correctional Facility. David J. Powers, however, indicated that this area and the golf facility will both be developed.

You also provided the Preliminary Landscape Plans for Elm Park (dated July 2003) prepared by Randall Planning & Design Inc. This area encompasses the historical elm grove (trees #201 – 255). Tree canopy outlines and trunk locations were present. The design would create a park under the canopy of the 35 elms on the south side of the double row (as defined by the fence between the open field and fire facility). Proposed use includes picnic tables, benches, bocce ball and horseshoes. A sidewalk would run down the center of the row.

Impacts to trees will occur in several ways. The golf facility will be demolished. Given the nature of the site, this will adversely impact trees. The swale on the north side of the property will be removed and replaced, impacting numerous trees adjacent to it. Grading for lots and roads may damage tree roots both directly through mechanical injury, and indirectly by altering soil structure, drainage, and biology. Finally, construction of new residences and associated infrastructure will impact trees. Most trees within the property are located within areas proposed for development.

Using the Vesting Tentative Map the potential impacts from construction were assessed for each tree. Given the nature of the project, there are no real opportunities for tree preservation. For this reason, we recommend removal of 151 trees (Table 2). Thirty-three (33) trees with moderate and good suitability for preservation will be removed due to impacts from development. One hundred eighteen (118) trees recommended for removal have poor suitability for preservation and would not be assets to the new project.

Included in the recommendations for removal are the 55 trees in the historical elm grove. In my view, the proposed use of the area around the trees is incompatible with the existing resource due to the very high potential for tree failure. As noted previously, the elms have poor suitability for preservation and a strong history of failure. To invite people to use the area beneath these trees would be inappropriate.

We tentatively recommend preservation of 34 trees: 32 along the Correctional Facility Access Road and 2 on the Santa Clara Valley Water District property. This recommendation is tentative as development may impact the access road. We also assume the two trees on the SCVWD property will not be impacted by development, an assumption that cannot be verified until more detailed site plans are prepared.

We also recommend relocation of one surveyed tree, a 9" coast live oak (#150). This tree can best be transplanted by side-boxing. In addition, we identified 13 Chinese pistache (*Pistachia chinensis*), 9 purpleleaf plum (*Prunus cerasifera* 'Atropurpurea') and 10 Bradford

pear (*Pyrus calleryana* ‘Bradford’) that were suitable for relocation by mechanical tree spade.

Options for Management of the Elm Grove
Under normal circumstances, there should be no question about the management of these trees. They have poor suitability for preservation and will not be long-term assets to the project. The trees are mature in age and character, have been poorly maintained for many years, are in declining health and have a history of failure.

Given the historic nature of the planting, the project could consider several management options other than removal:

1. Retain all 55 trees by revising the proposed plans for the project to exclude all activity within the fall zone of the trees. Fencing and signage would be required to discourage activity beneath the canopy. A path through the grove could be created by removing selected trees. Tree appearance (and structure) would be improved by pruning.

2. Retain trees with best health and structure but exclude all activity within their fall zone. Possible trees include #221, 246, 251, 252, 253, 254 and 255. Retention requires a long-term commitment to crown restoration. Note that these seven trees are in poor condition.

3. Contract with a nursery to propagate elms from seeds or scion wood collected from the grove. There are a number of small trees (less than 0.5 in. diameter) at the site. It is not obvious if these arose from seeds or as sprouts from the lower trunk and roots. Replant with trees grown from the existing elms.

I reiterate that our recommendation is to remove and replace all of the elms.

Tree Preservation Guidelines
The goal of tree preservation is not merely tree survival during development but maintenance of tree health and beauty for many years. Trees retained on sites that are either subject to extensive injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees will depend on the amount of excavation and grading, the care with which demolition is undertaken, and the construction methods. These impacts can be minimized by coordinating any construction activity inside the **TREE PROTECTION ZONE**.

The following recommendations will help reduce impacts to trees from development and maintain and improve their health and vitality through the clearing, grading and construction phases.

Design recommendations
1. Any plan affecting trees should be reviewed by the Consulting Arborist with regard to tree impacts. These include, but are not limited to, improvement plans, landscape and irrigation plans and demolition plans.

2. The Consulting Arborist will identify a **TREE PROTECTION ZONE** for trees to be preserved in which no soil disturbance is permitted. The **TREE PROTECTION ZONE** shall be defined as the edge of pavement for trees along the access road and edge of property for the redwoods on the SCVWD property.

3. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.

Pre-construction treatments and recommendations

1. Prior to the start of demolition, the Consulting Arborist shall meet with the contractor to review the location of tree protection fencing and work procedures.

2. All trees to be retained shall be fenced to completely enclose the **TREE PROTECTION ZONE** prior to demolition, grubbing or grading. Fences shall be 6 ft. chain link or equivalent as approved by consulting arborist. Fencing shall be placed at the edge of the **TREE PROTECTION ZONE**. Fences are to remain until all grading and construction is completed.

Recommendations for tree protection during construction

1. No grading, construction, demolition or other work shall occur within the **TREE PROTECTION ZONE**. Any modifications must be approved and monitored by the Consulting Arborist.

2. During excavation, any roots encountered greater than 2" diameter shall be severed cleanly with a saw or lopper.

3. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.

4. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.

5. Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.

Maintenance of impacted trees

Given the nature of the trees to be preserved, provisions for monitoring tree health and structural stability following construction must be made a priority. As trees age, the likelihood of failure of branches or entire trees increases. Therefore, the management plan must include a regular inspection for hazard potential.

HortScience, Inc.

James R. Clark, Ph.D.
Certified Arborist WE-0846